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LABORATORY PHOTOGRAPHIC APPARATUS

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WITH TWO PLATES

(1) A TABLE AND SCREEN FOR USE WITH A VERTICAL PHOTO-MICROGRAPHIC APPARATUS

Much if not a majority of photo-micrographic work is done with a vertical camera like that of Zeiss. To avoid various inconveniences in the use of this, a small table about 50 cm. high was constructed upon which the microscope and camera rest. This makes it possible for the operator to stand upon the floor for adjusting the camera, and to sit on a low stool for adjusting the microscope.

To avoid eye-strain from the light a zinc screen was made, with legs and heavy bases to fit over the table and between the microscope and the lamp. This screen is slightly higher than the vertical camera, so that when the bellows are pulled out to the extreme limit one can work without the lamp shining in the face of the observer. Opposite the lamp is a perforation in the screen. This is covered by a balanced curtain so that the light is very easily shut off at the desired moment (pl. XXIV, fig. A).

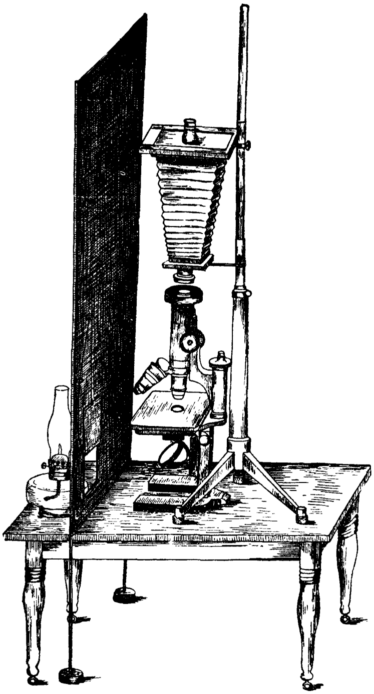
(2) A SPECIAL MICROSCOPE STAND WITH THE STAGE IN PLACE OF THE TUBE, FOR PHOTOGRAPHING EMBRYOS AND OTHER SMALL SPECIMENS WITH A VERTICAL CAMERA

As shown in the accompanying figure (pl. XXIV, fig. B) the small vertical photo-micrographic camera is placed upon the low table as in photo-micrography. In place of the sleeve for connecting the camera to the microscope, a photographic objective of 60 to 80 mm. focus is employed, thus making an ordinary camera of it. To support the specimen and also to serve as a focusing arrangement, a skeleton stage is attached to the arm of the microscope stand. The stage proper is absent. From this arrangement the specimen may be focused with either coarse or fine adjustment. For opaque objects there is a second staging below on which may be placed any desired background. For transparent objects a large mirror is in the usual place and serves to illuminate the object. For photographing embryos it is desirable to know the exact size of the photograph as compared with the specimen. To determine this quickly in each case the instrument is at first calibrated. That is, a centimeter rule is used as object, and the various sizes desired, *e. g.* natural size, twice, four times, five times, etc., are obtained by using dividers and measuring the image on the ground glass and noting the exact position of the upper and lower part of the camera. Having once determined these points, the camera may be set at the one desired in a moment. Then the focusing is done with the special microscope stand.

(3) USE OF THE SPECIAL MICROSCOPE STAND WITH AN ELEVATED CAMERA TO OBTAIN PICTURES OF LARGE SECTIONS, ENLARGE PHOTO-MICROGRAPHIC NEGATIVES, OR MAKE LANTERN SLIDES FROM THEM

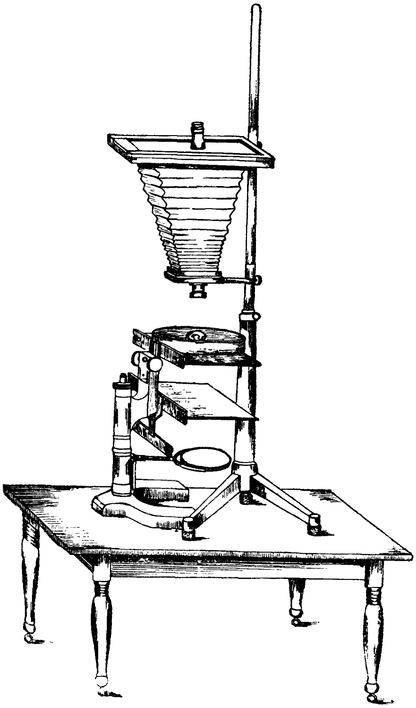
In photographing very large microscopic sections of embryos or of organs it is difficult to illuminate evenly the sections. To overcome this difficulty the camera is put in reverse order on the frame for the large vertical camera, and then elevated sufficiently to ensure a sky background. This will give even illumination. The specimen is placed on the stage of the special microscope stand. The focusing is then performed in the well-known way by a cord over the fine adjustment. One can focus as accurately as with a microscope. Objectives as high as 35 or 42 mm. may be used; or one may use a short focus photographic objective like the micro-planars of Zeiss.

PLATE XXXV



A

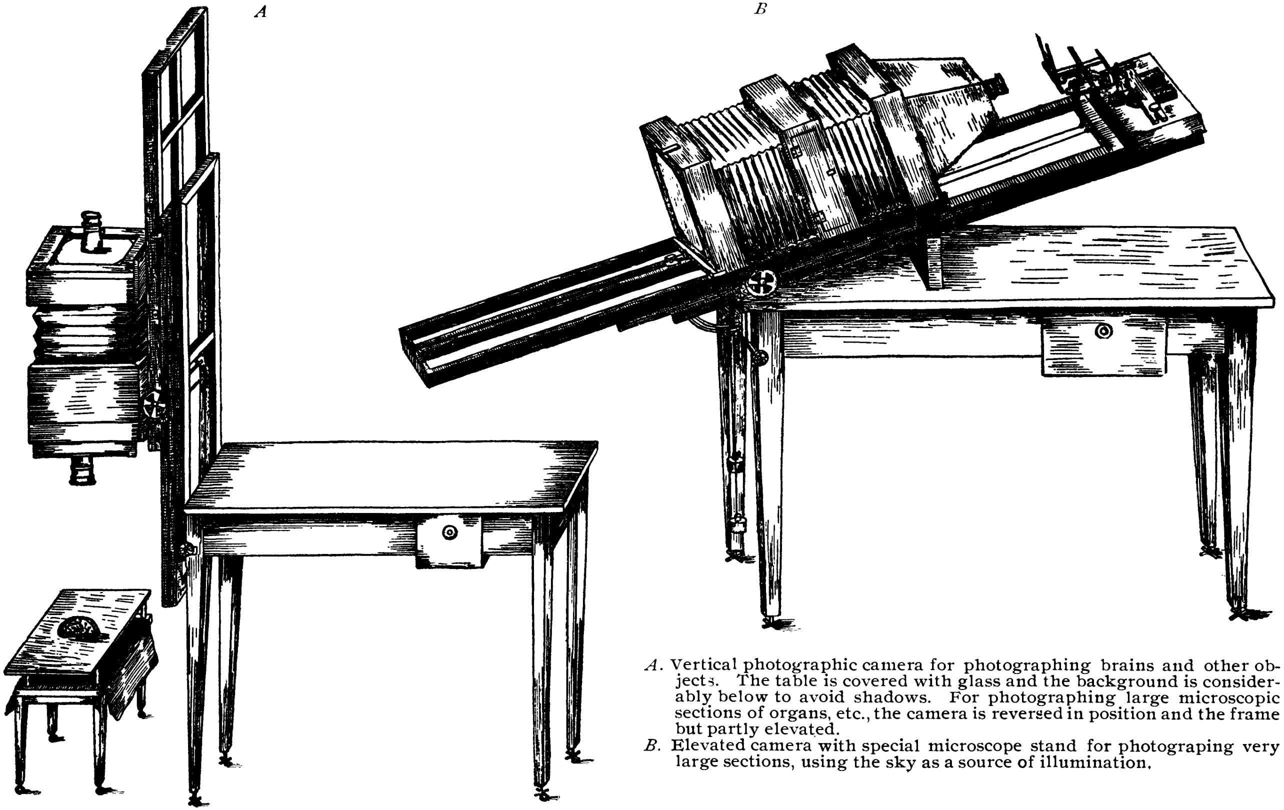
Small table and screen for the vertical photo-micrographic camera.



B

Special microscope stand with stage in place of the tube, so that the specimen can be focused with the fine or coarse adjustment.

PLATE XXXVI



A. Vertical photographic camera for photographing brains and other objects. The table is covered with glass and the background is considerably below to avoid shadows. For photographing large microscopic sections of organs, etc., the camera is reversed in position and the frame but partly elevated.

B. Elevated camera with special microscope stand for photograping very large sections, using the sky as a source of illumination.